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by him in Gustine Lake, Fairmount Park. Upon examination, this proved to consist of almost pure felted masses of *Tribonema bombycinum*.

Having determined the plants which enter into the composition of the algal paper mentioned above, it is important to describe the method of its formation. All of the forms of algae mentioned above are free-floating kinds ordinarily described as freshwater plankton. When floating on the surface, such plants are driven about by the wind that blows over the surface of the lake or pond. Smaller masses of floating algae are blown together until large mats are formed, in which dead leaves and other material may be incorporated, and these mats may be blown to the shore and anchored by drifting into shallow water. If such rafts of material occur in a reservoir, as at Honey Brook, the drawing off of the water would cause the stranding of the rafts. The water held in suspension in the interstices of the filaments evaporates and the cells dry up and extensive sheets of algal paper are thus formed. In the case of algal rafts stranded on the shores of ponds and lakes, the advent of hot weather and the lowering of the general level of the water by evaporation would cause in a similar manner the formation of the algal paper, or felt.

The composition of this paper depends on the algae which are present in the pond when the formation of the paper begins. The paper may consist entirely of one plant, as in the diatomaceous and oedogonial papers, or in a mixture of a number of diverse types of green algae with diatomaceous frustules and the remains of leaves blown into the pond from bordering forest trees.

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SHORTER NOTES

THE TAXONOMY OF A LEAF-SPOT FUNGUS OF THE APPLE AND OTHER FRUIT-TREES. — The "brown-spot" disease of apple leaves was doubtfully attributed to the fungus *Phyllosticta pirina* Sacc. by Alwood* in 1892. The same fungus occurs on the leaves of pear, quince, and plum, and the disease is known by the name of "leaf-spot," "frog-eye," etc.

* Alwood, W. B. Va. Agr. Exp. Sta. Bull. 17 : 62. 1892.

An examination of a considerable number of specimens of the fungus on apple and quince leaves shows that the spores in the more mature pycnidia are not "hyaline," as originally described by Saccardo,* nor "slightly smoky," as described by Martin † and by Ellis and Everhart ‡, but considerably smoky, even approaching olive-brown, the depth of color depending upon the maturity of the spores. There is a possibility that the descriptions referred to were made from immature specimens.

I have been able to obtain artificial cultures of the fungus readily. In the cultures, the spores ooze out of the pycnidia in dull black masses. The culture work is being continued and inoculations are being made by Mr. Carl P. Hartley, whose results will be published later.

The color of the mature spores is more like the color of the spores of a *Coniothyrium* than a *Phyllosticta*, and *Coniothyrium tirolense* Bubák,§ occurring on pear leaves, may be only a mature *Phyllosticta pirina* Sacc. I have not had an opportunity to compare specimens of the two fungi.

On account of the color of the spores as they have been found on the leaves and as they develop in artificial cultures, together with the general character of the pycnidia, it seems advisable to transfer the fungus from the genus *Phyllosticta* to the genus *Coniothyrium*, and the name ***Coniothyrium pirina*** (Sacc.) (= *Phyllosticta pirina* Sacc. Michelia 1: 134. 1878) is proposed.

Acknowledgments are due to Mrs. Flora W. Patterson, mycologist of the United States Department of Agriculture, and to Professor P. A. Saccardo, to whom specimens of the fungus on apple and quince leaves were submitted for determination and comparison with type specimens of *Phyllosticta pirina* Sacc.

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* Saccardo, P. A. Michelia 1: 134. 1878. Syll. Fung. 3: 7. 1884.

† Martin, George. Journ. Mycol. 2: 17. 1886.

‡ Ellis, J. B., & Everhart, B. M. The North American Phyllostictas, 36. 1900.

§ Bubák, Fr. Oesterr. Bot. Zeitschr. 54: 183. 1904. Saccardo, Syll. Fung. 18: 309. 1906.

THE RANGE OF *VACCINIUM VIRGATUM*.— For the last two or three years I have been endeavoring to secure more complete specimens of the different species and forms of blueberries and huckleberries occurring in New Jersey than are usually to be found in herbaria. With this end in view I have marked quite a number of shrubs in different localities, and from them have secured as complete material as possible, my aim being to obtain from the same plant flowers, fruit and both young and mature foliage. Several peculiar forms have been met with and some of the species show an unusual amount of variation. Such forms and variations are now being studied as opportunity offers, but one of the discoveries growing out of the collecting is so interesting that I now wish to call attention to it.

The interesting discovery referred to is that *Vaccinium virgatum* Ait., which has heretofore been known only from Virginia and southward, is rather common in the pine-barren region of New Jersey. I have specimens from several localities around South Amboy as well as from Tom's River, and there are incomplete specimens from the latter place in the herbarium of the New York Botanical Garden, as also from Staten Island.

In general aspect the plant has much the appearance of a gigantic *Vaccinium pennsylvanicum* Lam., the strongly serrulate leaves and greenish warty branches markedly resembling those of that species. However, its true relationship is with the exceedingly variable *Vaccinium corymbosum* L. From this the strongly serrulate leaves quickly distinguish it. Dr. Small's recently described *Vaccinium simulatum* cannot be confused at flowering time, as it has a short corolla like *Vaccinium vacillans* Kalm, while our plant has a long corolla like *V. corymbosum*. Dr. Small's species seems, too, to be more a plant of the mountains, and *V. virgatum* to be more a plant of the lowlands. Fruiting specimens of the two species are, however, separated from one another with difficulty.

The New Jersey form like the southern form develops the earlier flowers (which are usually but little tinged with rose) before the leaves, but many of the flowers remain until after the leaves are nearly fully grown. The pubescence of the young

leaves is not strongly developed, but nevertheless persists on the lower surface of the mature leaves, especially on the veins. The fruit is abundant and resembles in size that of *V. corymbosum*. In color, however, it is much more variable, ranging from dark-blue with a little bloom to blackish with no bloom, thus showing a very similar variation to that exhibited by the common huckleberry [*Gaylussacia baccata* (Wang.) K. Koch].

Judging from the original description of *V. virgatum* by Aiton (Hort. Kew. 2: 12) written in 1789, the plant intended to be named cannot be told with any certainty, but in Watson's Dendrologia Britannica (pl. 33) there is a good plate of the plant cultivated in Great Britain under that name — evidently the same species to which the name is applied in America. The extension of its range northward into New Jersey and New York is, of course, not at all surprising when one considers the large number of southern forms with a similar range.

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REVIEWS

Kraemer's Text-book of Botany and Pharmacognosy*

This book is intended for the use of students of pharmacy, as a handbook for food and drug analysis and as a work of reference. It appears as a second edition of a former work of Professor Kraemer's, published in 1902, even though that had a slightly different title, and the subject-matter has been so changed and extended that it might well be issued as an independent work. The first edition was a small octavo book of less than 400 pages, with 17 plates inserted at the close of the text, and with practically no discussion of botanical theory. The present volume is a larger octavo of over 800 pages, with 321 figures dispersed through the text, and over one fourth of the discussion is devoted to pure botany.

*Kraemer, Henry. A Text-book of Botany and Pharmacognosy. 8vo. vi + 840. f. 1-321. Second revised and enlarged edition. J. B. Lippincott Company, Philadelphia and London. 1907. \$5.00 net.